

FISHERY MANAGEMENT PLAN

BUFFALO NATIONAL RIVER

JOINT MISSION STATEMENT

Fisheries Management for Buffalo National River represents a cooperative effort between Buffalo National River (National Park Service), The Arkansas Game and Fish Commission, and the Buffalo Ranger District (Ozark National Forest) to provide for the management of the fisheries within Buffalo River. Each agency agrees that management direction will focus on a watershed-based approach to habitat protection with ecosystem integrity as a major component. Fisheries management efforts will seek to provide not only for the wise stewardship of the fisheries for future generations but also a "quality" recreational fishing experience for the visitor compatible with the mission of both agencies.

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7/12/95
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EXECUTIVE SUMMARY

The Plan outlines agency policy, regulations, and guidelines as well as discussing specific management issues. A detailed discussion of a variety of recreational "themes" of varying importance to each cooperating agency is also presented.

Three broad goals and are defined and several associated objectives are outlined. From each of these objectives flow a series of measurable tasks which will provide for continued protection of Buffalo Rivers' fishery.

Broad goals for management of Buffalo Rivers' fishery include:

- 1) Fisheries management will seek to preserve and restore natural ecosystem functions while conserving the fishery.
- 2) Provide for diverse and qualitative recreational angling opportunities for native species.
- 3) Coordinate resources management with State, federal, and private sector.

The specific tasks are broken down into cooperating agency, advisory group, and National Park Service division responsibilities in Section VI of the Plan. Tasks range from routine maintenance to establishing a citizen advisory task force to provide management input.

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I. INTRODUCTION:

SUMMARY - Fishing is specifically authorized in the legislation establishing Buffalo National River. The need to prepare a Fishery Management Plan is driven by at least three main issues which stem from the recognition of recreational fishing as an activity: (1) The need for closer coordination, planning, and communication among agencies. (2) The perceived increase in recreational fishing pressure. (3) The lack of baseline data on fisheries. The resulting specific tasks identified in the plan will be incorporated in the parks Resources Management Plan.

A. Need for the Plan

The need to manage the fishes and fisheries of Buffalo River through a cooperative interagency planning effort has been discussed in Public Law 92-237 establishing the Buffalo National River in 1972 "...any rules and regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Arkansas Game and Fish Commission." Planning documents such as the Final Master Plan 1977 Buffalo National River also speak to a cooperative effort with "adjacent government units in all programs."

Prior correspondence between the National Park Service and the Arkansas Game and Fish Commission has discussed the need for such a plan almost since the establishment of Buffalo National River.

Additionally, increasing pressure on fish populations through recreational fishing will continue to be a management concern for all cooperating agencies involved in this plan. Fishing will continue to be popular as a recreational past-time. A recent Gallup poll found fishing ranked first among recreational activities for men and a surprising 5th among women. Ninety-eight million Americans spent \$59.5 billion in 1991 on recreation and 70% of that figure involved hunting or fishing related purchases.

Finally, issues such as the lack of baseline data on fish, recreational use, external threats to the aquatic resources, etc. on which to make management decisions have accelerated the need to develop such a plan. Most notably, a recent controversy concerning catfish stocking in the river by the Arkansas Game and Fish Commission and potential conflicts with National Park Service Policy has resulted in all agencies recognizing the need for a cooperative management effort.

In the spring of 1993, a cadre of National Park Service fisheries biologists met with Park staff to develop goals, objectives, and specific action tasks as a fore-runner of a cooperative fisheries management plan. Present were representatives from the NPS as well as other Federal agencies such as the U.S. Forest Service and the U.S. Fish and Wildlife Service. This information was presented to the Arkansas Game and Fish Commission fisheries biologists for their review and comment before proceeding with the public involvement phase of the plan.

B. Relationship to Planning Documents

The Fishery Management Plan will be an action document which has been specifically addressed as a need in the Resources Management Plan for Buffalo National River. It will be a cooperative document developed and agreed to through a series of Memorandums of Understanding with the Arkansas Game and Fish Commission, Ozark National Forest, and reviewed by the National Biological Survey Unit University of Arkansas in Fayetteville, Arkansas. The document will be reviewed for revision by a multi-agency Task Force on a minimum of five year intervals.

Specific tasks (Section VI) identified within this plan will become individual Project Statements within the approved Resources Management Plan for Buffalo National River.

C. Buffalo National River history and legislation

Buffalo National River history is discussed in the Master Plan (1977). While the Buffalo River was recognized for its significance as early as 1935, it was not until 1961 that Congressional support paved the way for its establishment as the first National River. In 1963, a feasibility study by the National Park Service judged the river to be nationally significant and recommended preservation. Concurrent efforts to dam the River at two sites gave renewed emphasis to designate national status. The Congressional legislation was first introduced in 1967, with final passage on March 1, 1972.

Applicable portions of that legislation state:

1. The Buffalo National River was established "...for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations." (Section 1)

2. And with regard to hunting and fishing: "The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the boundaries of the Buffalo National River in accordance with applicable Federal and State laws, except that he may designate zones where and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use or enjoyment. Except in emergencies, any rules and regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Arkansas Fish and Game Commission." (Section 3)

3. A Heritage of Fishing - The National Park Service Recreational Fisheries Program

"In June 1988, the National Park Service and more than 60 Federal, State, and private organizations signed the National Recreational Fisheries Policy. The purpose of the national policy is to provide long-term common goals for managing the nation's recreational fisheries. It also provides a framework from which the signatories can identify and initiate agency specific actions which support the goals of the national policy within the framework of the agency's mission.

Using this framework, the National Park Service has developed a Recreational Fisheries Program which incorporates the Service's fundamental mandate to preserve and restore its fisheries resources."

The goals and objectives developed for fisheries management for Buffalo National River stem directly from those goals and objectives outlined in the above document.

4. National Park Service Guideline (NPS-77)

"The Superintendent has the primary responsibility to ensure that the stated NPS fishery management policies are being followed within the park's fisheries management program and that water in which stocking, fisheries enhancement, or exotic species management activities are occurring are within the appropriate zone designation. Where the harvest of fish resources is permitted, the superintendent should assure that adequate technical expertise and funding are available to evaluate harvest impacts and establish regulatory controls." (NPS-77) A more detailed discussion of guidelines and their implications to Policy occurs in the section on issues.

5. Final Master Plan Buffalo National River, 1977

In discussing other recreational opportunities available in the Ozarks the Master Plan states "This quantity and variety are fortunate, for diversity is needed to satisfy recreational demand, and the Buffalo thus can be reserved for special experiences that the other areas cannot provide. In short, although the Buffalo is a park for the people, public use will be oriented to the resource itself..."

"America now has its first national river. The citizens have debated, their Congress has decided, and the National Park service has been called upon to express a new park concept in terms of optimum usefulness of the areas special resources. It is the intent of the present master plan to provide concepts for developing and managing public use; but perhaps most important is the need to preserve the near-neutral environment of the area and develop the necessary facilities that will take full advantage of the natural systems, to conserve energy, experiment with techniques of such conservation, and coordinate efforts to keep all pollution at the very lowest level. In doing so the naturalness can best be exemplified, while assuring the finest quality in the recreational experiences provided."

"If quality is the guidepost to the special recreation experience to be provided here, should not even the catch-oriented fisherman take the river on its own terms rather than 'fixing it' to suit his pleasure? Occasional disappointments may result without an intensive fish-

management program, but certainly the sense of adventure and self-sufficiency will not suffer."

ARKANSAS GAME AND FISH COMMISSION

The Arkansas Game and Fish Commission is mandated through Amendment 35 of the Arkansas State Constitution the "control, management, restoration, conservation and regulation of birds, fish, game and wildlife resources of the State" (Section 1, Amendment 35 of the Arkansas State Constitution). Prior to the acquisition of the Buffalo River by the National Park Service, the Commission actively managed the river's fishery through harvest regulations, supplemental stocking of selective sport species, and assessing fish community species. The Commission will continue to play a lead role in the management of the Buffalo River's aquatic resources and share responsibility for the development and implementation of any fishery management plan and restoration effort with the National Park Service as described in the operative Memorandum of Understanding (Appendix I).

B. Buffalo National River management zones

The concept of management zones and descriptions of appropriate activities within Buffalo National River has been an evolving and sometimes confusing process. The 1977 Master Plan describes a classification scheme based on the concept of a "conservation zone" to direct development. The majority of the land within Buffalo National River (78,133 acres) was within this zone. Actual land use was described in a scheme containing six classes; "general outdoor recreation, natural environment, outstanding natural areas, primitive areas, and historic and cultural areas. Based on this concept, the conservation zone was to contain all of these classes except general outdoor recreation.

The Master Plan further adds to this complex situation by categorizing Buffalo National River as a "recreation area" in the appendices. Such a categorization has been superseded by a more refined management zone concept and little, if any, reference is made to this designation in subsequent Park management documents. However, the Master Plan is explicit in discussing the concept of recreational opportunities and draws the reader back to a resource focus. Area recreational opportunities of this "quantity and variety are fortunate, for diversity is needed to satisfy recreational demand, and the Buffalo can thus be reserved for special experiences that other areas cannot provide. The corollary is that it also allows the Buffalo not to provide experiences that other areas offer. In short, although the Buffalo National River is a park for people, public use will be oriented to the resource itself;" (Final Master Plan, 1977)

With the completion of a major revision in 1988, National Park Service Management Policies outlines those criteria for

establishing management zones: Congressionally established purpose, the nature of the resources, all past, existing, and established uses, and management objectives. Through this process four primary management zones will be identified: natural, cultural, development, and special use. The natural and cultural zones are managed for the conservation, protection, and preservation of those associated resources while the development zone provides visitor related facilities. Those areas defined as special use are used for activities that are not appropriate for the other zones.

Buffalo National River currently needs to revise the existing Master Plan or create a General Management Plan which clarifies the existing zones and officially adopts the 1988 Management Policies concept of zonation.

C. Overview of specific fisheries management issues

1. Fisheries Management

ACTION: *Overall fisheries management within the Buffalo National River shall be directed toward a watershed based program which encompasses resources protection, recreation, and a quality fishing experience.*

JUSTIFICATION: "In natural, cultural, and park development zones, fisheries management will seek to preserve or restore natural aquatic habitats and the natural abundance and distribution of native aquatic species, including fish, together with the associated terrestrial habitats and species."

(NPS Management Policies 1988)

Further explanation of this Policy is presented more fully in NPS-77 (Natural Resources Management Guidelines) stating "Superintendents should strive to preserve or restore the natural behavior, diversity, and ecological integrity of fish populations in fulfilling their fishery management responsibilities." However, NPS-77 also provides the following caveats: "The fisheries management goal should not be to maximize sustainable harvest..." and consideration should be given to preservation of genetic stock and the establishment of restricted waters in which no fishing is allowed. The current policy "emphasizes the restoration and preservation of natural assemblages of native species." "Catch-and release-only regulations should be considered by superintendents whenever implementation is feasible..."

2. Recreational fishing

ACTION: *Recreational fishing will be one important component of fisheries management within Buffalo National River.*

JUSTIFICATION: Fishing shall be permitted within the "boundaries of the Buffalo National River...". Public Law 92-237

Recreational fishing "...will be allowed in parks where it is authorized by federal law or where it is not specifically prohibited and does not interfere with the functions of natural aquatic ecosystems or riparian zones. Where fishing is allowed, it will be conducted in accordance with applicable federal laws and treaty rights and state laws and regulations. However, the National Park Service may restrict fishing activities whenever necessary to achieve management objectives outlined in a park's resource management plan." (NPS Management Policies 1988)

Support for recreational fishing has been interpreted from the NPS Organic Act as a means of providing park visitors with a direct connection to park resources. "However, the activity of recreational fishing is generally resource consumptive and, if not closely regulated, inconsistent with resource preservation philosophies." (NPS-77 Resource Management Guidelines)

3. Commercial fishing

ACTION: *No operations for the commercial sale of fish will be permitted within the National River. Also prohibited are those operations that include commercial collection of fresh water mussels and turtles.*

JUSTIFICATION: Commercial operations "...will be allowed only when specifically authorized by federal law or treaty right." (NPS-77)

4. Restrictions for recreational fishing

ACTION: *Fishing is normally recognized as a consumptive activity which must be managed and may be restricted in order to meet specific management objectives and maintain species integrity.*

JUSTIFICATION: "to protect rare, threatened, or endangered plant or animal species in the waters or in adjacent habitat

to meet park objectives for scientific study, interpretation, environmental education, appreciation of fish and other aquatic life, or other public benefits

to provide for depressed fisheries to recover

to protect spawning grounds of endemic fish species

to maintain natural distribution, densities, age-classes, and behavior of fish or of native wildlife species that use fish for food

to protect the natural integrity of aquatic areas within natural zones" (NPS Management Policies)

5. Stocking

ACTION: *Stocking can be used to restore or reestablish a native species with the goal of establishing a natural self-sustaining population.*

JUSTIFICATION: "Artificial stocking of native fish will be employed in natural zones only to reestablish native species in their historic ranges. Stocking programs for other purposes in these zones will be discontinued or phased out except where there is Congressional intent expressed in law or a House or Senate report accompanying legislation." (NPS-77)

The following guideline should be adhered to where stocking activities are considered or deemed appropriate. "Native species stocking into historic ranges is to be limited to the endemic genotype. If the endemic genotype cannot be acquired, then the most similar available genotype may be used." (NPS-77)

6. Competitive recreational fishing activities

ACTION: *Noncompetitive fishing "clinics", events, and other aquatic education programs will be encouraged. Competitive fishing tournaments, derbies, contests, etc. will not be sanctioned within Buffalo National River.*

JUSTIFICATION: "Such tournaments should be considered a special park use that requires permitting in accordance with NPS Management Policies." However, those activities according to NPS-77 "are not generally compatible with the goals and objectives of fisheries management within NPS natural, cultural, and park development zones."

7. Habitat manipulation

ACTION: Activities which are directed toward habitat manipulation will only be permitted as follows:

"Interference with natural processes (habitat manipulation) in park natural zones will be allowed only (1) when directed by Congress, (2) -in some emergencies when human life or property are at stake, or (3) to restore native ecosystem functions that have been disrupted by past or ongoing human activities." (NPS-77)

8. Restoration and enhancement

ACTION: Fish enhancement (management activities which attempt to exceed the natural carrying capacity of a species or focus all fisheries production on a single species) will not be considered as a management objective. Restoration efforts of limited duration, and having natural ecological endpoints, will be encouraged.

JUSTIFICATION: "In natural, cultural, and park development zones, fisheries restoration measures are strongly encouraged while fisheries enhancement activities are prohibited." (NPS-77) The guidelines defines fisheries restoration as "increasing the density of native fishes to historic levels through the application of scientifically-based harvest management, species reestablishment, habitat protection, and/or habitat rehabilitation (reconstruction) techniques." Fisheries enhancement is defined as "procedures applied to a fish stock designed to increase the production or density of a native fish above a level that could be produced naturally or to compensate for harvest." More specifically, "habitat restoration and species reestablishment activities, although they may involve manipulation of the habitat, are directed toward re-creation of natural ecological conditions, while enhancement activities represent a deliberate manipulation of natural ecosystem processes for the express purpose of changing natural ecological conditions." (NPS-77)

III. FISHERIES MANAGEMENT

SUMMARY - The approach to fisheries management has changed drastically from the early years of the NPS. Fisheries management now has a strong ecological focus stressing preservation and a "special experience" for the visitor. It is recognized that other agencies and special interest groups may have additional agendas strongly focused on recreation and/or economics.

A. The history of early NPS fisheries management

The basic tenant of Buffalo National River fisheries management lies with the 1916 Organic Act and its' statement of purpose to "promote and regulate the use of federal areas...by such means and measures as to conform to their fundamental purpose...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The early history of fisheries management in the NPS reflects the limited knowledge of the times and the initial conflicts of the NPS to balance the dichotomy of it's mission to use and enjoy, yet protect and preserve. Fishing was used to gain support for the fledgling system. Stocking was the action of choice and often exotic species were used. Areas and waters not yet exposed to fishing were often exploited under the guise of "fisheries management" to attract visitation, business interests, and support local economies. But change was on the way with a new appreciation of ecology and the evolution of a more holistic approach to management. Also evolving was a "naturalness concept". This concept suggested the intrinsic and natural well-being of aquatic resources in the National Park System may be more important to society than satisfaction gained from a successful fishing trip or as a basis for income and employment (USFWS 1979).

As the NPS system grew it became more diverse with over 20 different designations ranging from national parks to national seashores to national recreation areas. The confusion as to how to manage these areas with their diverse resources was not addressed, when, in 1964, the NPS attempted to divide its units into natural, historic, and recreational categories with a separate management direction for each.

Partially because of the continued confusion over how best to manage park resources, Congress in 1970 amended the Organic Act to state that while the parks contained different resources they were all to be under the same mission "including but not limited to the " Organic Act.

In 1978, the Organic Act again was amended because of litigation concerning the Redwood National Park and Congress stated the Secretary of Interior had "a duty, which is not to be compromised" to fulfill the Organic Act. The 1979 USFWS Task Force on NPS fisheries management recognized that the 1916 Act was "reconfirmed irrespective of the types of units added."

The 1988 NPS Management Policies discussed four management zones identified as natural, cultural, park development, and special use. Natural is managed to conserve natural resources and ecological processes. Cultural zones preserve, protect, and interpret cultural resources. Park development is to provide maintenance facilities to serve park managers and visitors. Finally special use zones are land and waters used for activities not appropriate in other zones. Examples might include forest utilization, reservoirs, etc...

The Policy states in "natural, cultural, and park development zones fisheries management will seek to preserve or restore natural aquatic habitats and the natural abundance and distribution of native aquatic species, including fish, together with the associate terrestrial habitats and species."

B. Fisheries management for Buffalo National River

Fisheries management in the National Park Service and Buffalo National River represents a dichotomy. One aspect of this dual mandate involves resource preservation "In areas set aside with legal authorization for ...fishing... the National Park Service shall seek to perpetuate native animal life and to protect the integrity of natural ecosystems" (NPS-77). While recognizing the importance of protecting those natural resources, the influences of recreation demonstrate the other part of the dichotomy. The National Recreational Fisheries Policy, of which the NPS is a signatory, states "A concerted and diligent effort is required to maintain, restore, and increase the productivity of these (fish) populations and habitats to provide for continuing public benefits."

This dichotomy, is the reason for development of a Fishery Management Plan for Buffalo National River. The Plan also must address the two overriding themes of protection and use. These themes provide a concept of the river as "a symbol to the Nation" and that "the river's ability to stir our higher senses and feelings about the beauty of the natural world

makes it worth saving." (Final Master Plan, 1977)

Protection of the aquatic life as a significant resource is one component of the dichotomy filled with descriptors such as "outstanding, richest, etc". "Indeed, the river and its tributaries constitute one of the richest areas in the nation in terms of total number of fish species" (Field Investigation Report Suggested Buffalo National River 1963) The final Master Plan reaffirms the significance of the fisheries; "The Buffalo is nationally outstanding for the many species of fish" and "The rivers natural setting must be maintained." (Final Master Plan, 1977)

The recreational component of the dichotomy carries with it many subthemes which should reflect the quality of the experience rather than emphasis on numbers of fish caught, catch per unit of effort, etc. It is the composite of these recreational subthemes and concept of resource protection which should present the true intent of providing recreational fishing within the Buffalo River.

The National Park Service, Arkansas Game and Fish Commission, Ozark National Forest and area communities are concerned with the subthemes listed below and all support the primary theme of protection of this resource. However, each of these major players may see the additional recreational themes at differing levels of importance depending on their own mission.

Properly managed and regulated recreational fishing is entirely compatible with the NPS mission to provide public enjoyment and recreation while leaving the resources unimpaired for future generations. Completing this task will require the cooperation and assistance of all interested parties and players.

PRESERVATION OF THE NATURAL AQUATIC ECOSYSTEM

This philosophy recognizes recreational opportunities within the larger ecosystem context. However, it confirms the idea that all park resources are to be managed with an "emphasis on fundamental ecological processes as well as individual species, communities, and natural areas." (A Heritage of Fishing, The National Park Service Recreational Fisheries Program)

"Comprehensive fishery management plans should be developed for such areas to fully address the impacts on native aquatics from introductions, enhancement, or protection of non-native species." (Natural Resources Management guidelines NPS-77)

A SPECIAL EXPERIENCE

The final Master Plan (1977) addresses the recreational opportunities available within Buffalo National River. However while "this quantity and variety are fortunate, for diversity is needed to satisfy recreational demand... The Buffalo thus can be reserved for special experiences that other areas cannot provide." "The corollary is that it also allows the Buffalo to not provide experiences that other areas offer." It also recognizes the unique diversity as being "...nationally outstanding for the many species of fishes" and is defined by terms such as "classic stream" and "isolated ecological unit".

"Fishery management presents something of a paradox". Related to an early proposal to impound the river to increase fishing man-days the Master Plan states "If quality is to be the guidepost to the special recreation experience to be provided here, should not even the catch-oriented fisherman take the river on its own terms and experience the vagaries of nature rather than "fixing it" to suit his pleasure? Occasional disappointments may result without an intensive fish-management program, but certainly the sense of adventure and self-sufficiency will not suffer." (Master Plan, 1977)

This theme is restated as a national goal for recreational fishing "to provide the recreational angler with a quality fishing experience while preserving the natural aquatic ecosystems." (A Heritage of Fishing, The National Park Service Recreational Fisheries Program)

RECREATION

The 1963 Field Investigation Report for Buffalo National River recognized "The outstanding fishing opportunity... is, at present, one of its principal attractions." When referring to the fish and wildlife, the investigation stated that these resources were "... probably the major outdoor recreational outlet for its residence." It called the fishing opportunity "renowned" and considered "it is a regionally important fishing resource."

Buffalo River is described within the Final Master Plan, 1977, as a "fishin hole" for local users and the idea of preserving that type of visitor experience such as "wild" fishing are of premier importance.

VISITATION

Fishing may also be used to promote visitor use. This idea is echoed in the Statement for Management which refers to the opportunity to "float, fish, swim, ..." and the final EIS for

Buffalo National River recognized that "... other resources, including that of float fishing, are of national significance."

AREA OF COOPERATION

"The NPS will cooperate with Arkansas Game and Fish Commission in managing the wildlife". "It is essential that memoranda of understanding be developed between the NPS and these agencies for consultation related to fish management." (Final Master Plan, 1977)

Agency coordination between the USFS and the NPS will be a component of this plan. The USFS manages 16 miles of the river from the headwaters to the NPS boundary. Most of the river within the National Forest is in the National Wild and Scenic Rivers System and shares a common Wilderness area boundary with the National Park Service Wilderness area.

The National Park Service will work with local communities and tourism bureaus to stress the mission and overall management goals for the Buffalo National River fishery.

IV. UNIT DESCRIPTION AND RESOURCES

Buffalo National River encompasses 148 square miles (95,730 acres) and includes 135 miles of the 150 mile long river. Approximately 90% of the rivers' total length is within the NPS boundary. The first 15 miles, in the headwaters, are within the Ozark National Forest. However, only 11% of the 1338 square mile watershed lies within Buffalo National River and only 39% is in public ownership between the NPS, U.S. Forest Service and the State of Arkansas. The remaining 61% is in private ownership.

During 1981, a study by Ditton estimated that 33,000 fisherman used the river. Additionally, 13.5% of the canoeists on the lower river had fishing equipment with them and 41% of the fishermen were canoeists. Fifty-one percent of these fishermen were local residents. Boat use by concessionaires is currently limited to 1350 canoes total for the river and 110 johnboats. Additional access is available for bank fishing from many roads, trails, and foot paths as well as the 22 maintained vehicle access sites along the river. Recent results of a creel survey of the river found that of an estimated 148,000 recreators on the river in 1991, 10% were anglers (14,513).

Data regarding the diversity and density of the fishes within Buffalo River is scanty and consists of early field data surveys in conjunction with park establishment. No quantitative data are known prior to park establishment and no

qualitative data is speculated to exist for the time prior to the impounding of the White River. Early studies listed 59 different fish species from 12 families (Cashner 1977). Updated species presence lists and associated data is provided in TABLE 1.

The first ichthyofaunal records for the Buffalo River system were provided from the upper tributaries by Meek (1895), and Black (1940) who reported 26 fish species known to occur in this river. Comprehensive surveys of the fishes of Buffalo River were conducted by Cashner (1967), Guidroz (1975), Becker and Kilambi (1975), and Kilambi and Becker (1977). Guidroz reported 51 species and Kilambi and Becker identified 49 species. Cashner and Brown (1977) recorded 56 species for the Buffalo River based on 135 collections and previous reports. According to Robinson and Buchanan (1988) 62 species occurred in the Buffalo River system. This higher number was probably due to new introductions.

In addition to the surveys of the Buffalo River ichthyofauna, several general studies of fishes of this river have been published. Peek (1965), Cashner and Suttkus (1977), Kilambi et. al. (1977), Whisenant and Maughan (1989), and Walters (1993) conducted research on smallmouth and Ozark bass. Geighsler (1975) reported the life history of the yoke darter, and Seigworth (1992) studied channel catfish of the Buffalo River.

Buffalo River has been periodically stocked by the Arkansas Game & Fish Commission over the last fifty years. Records indicate more than 1.5 million fish of various species have been stocked in the river and its tributaries since 1942 (Siegwarth 1992). Stocking of game species occurred as late as 1983 for smallmouth bass and continued for channel catfish until terminated in 1988 at the request of the National Park Service.

TABLE 1: STATUS OF FISHERIES RESOURCES OF THE BUFFALO RIVER. (1)

<u>Scientific Name</u>	<u>Locality</u>	<u>Habitat</u>	<u>Season</u>	<u>Researcher</u>
PETROMYZONTIDAE				
<u>Ichthyomyzon castaneus</u>	23	R	3	WARGKC
<u>Lampetra appendix</u>	123			RGC
LEPISOSTEIDAE				
<u>Lepisosteus osseus</u>	123	P	3	WARK
ANGUILLIDAE				
<u>Anguilla rostrata</u>	123	P	3	WARKC
CLUPEIDAE				
<u>Dorosoma cepedianum</u>	23			WRC
CYPRINIDAE				
<u>Campostoma anomalum</u>	123	PR	3	WARGKC
<u>C. oligolepis</u>	123	PR	234	WRGKC
<u>Cyprinella galactura</u>	123	PR	23	WRGKC
<u>C. whipplei</u>	23	R		WRKC
<u>Cyprinus carpio</u>	3			R
<u>Erimystax dissimilis</u>	123	PR	234	WARGK
<u>Luxilus chrysocephalus</u>	123	PR	3	WARGKC
<u>L. pilsbryi</u>	123	PR	2	WARGKC
<u>Nocomis biguttatus</u>	123	PR	234	WRGKC
<u>Notemigonus crysoleucas</u>		PR		WGC
<u>Notropis amblops</u>	123	PR	23	WARGKC
<u>N. boops</u>	123	PR	23	WARGKC
<u>N. greeniei</u>	123	PR	2	WARGKC
<u>N. nubilus</u>	123	PR	23	WRGKC
<u>N. ozarcanus</u>	123	PR	2	WRGKC
<u>N. rubellus</u>	123	PR	2	WARGKC
<u>N. telescopus</u>	123	PR	23	WARGKC
<u>Phoxinus erythrogaster</u>	123			WRG
<u>Pimephales notatus</u>	123	PR	23	WARK
<u>Semotilus atromaculatus</u>	1			WGC
CATOSTOMIDAE				
<u>Carpiodes velifer</u>	3			WC
<u>C. carpio</u>	3		3	A
<u>Hypentelium nigricans</u>	123	PR	23	WARGKC
<u>Minytrema melanops</u>	3			R
<u>Moxostoma carinatum</u>	23			ARC
<u>M. duquesnei</u>	123	PR	3	WRGKC
<u>M. erythrum</u>	123	P	3	ARGKC

ICTALURIDAE

<u>Ameiurus melas</u>	3	P	3	WARGKC
<u>A. natatis</u>	123	PR		WRGKC
<u>Ictalurus punctatus</u>	123		3	WARGC
<u>Noturus albater</u>	123	PR	234	WARGKC
<u>N. exilis</u>	123	PR	4	WRGKLC
<u>N. flavater</u>	123	PR		WARGKC
<u>Pylodictus olivaris</u>	23	P -	3	WARGKC

SALMONIDAE

<u>Oncorhynchus mykiss</u>	3			R
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CYPRINODONTIDAE

<u>Fundulus catenatus</u>	123	PR	3	WARGKC
<u>F. olivaceus</u>	123	PR	23	WARGKC

ATHREINIDAE

<u>Labidesthes sicculus</u>	123	P	23	WRGKC
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COTTIDAE

<u>Cottus carolinae</u>	123	PR	3	WARGKC
<u>C. hypselurus</u>	trib			W

PERCICHTHYIDAE

<u>Morone chrysops</u>	3			R
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CENTRARCHIDAE

<u>Ambloplites constellatus</u>	123	PR	34	WARGKC
<u>Lepomis cyanellus</u>	123	PR	34	WARGKC
<u>L. macrochirus</u>	123		3	WARGKC
<u>L. microlophus</u>	23		3	WA
<u>L. megalotis</u>	123	PR	234	WARGKC
<u>Micropterus dolomieu</u>	123	PR	3	WARGKC
<u>M. punctulatus</u>	23	P		WRGKC
<u>M. salmoides</u>	123	P		WARGKC
<u>Pomoxis nigromaculatus</u>	123			W

PERCIDAE

<u>Etheostoma blennioides</u>	123	PR	234	WARGKC
<u>E. caeruleum</u>	123	PR	234	WARGKC
<u>E. euzonum</u>	123	R	2	WARGKC
<u>E. juliae</u>	123	PR	23	WARGKC
<u>E. punctulatum</u>	123	PR		WRGKC
<u>E. spectabile</u>	13			WARGC
<u>E. stigmaeum</u>	123	R		WRGKC
<u>E. zonale</u>	123	PR	23	WARGKC
<u>Percina caprodes</u>	123	PR	3	WARGKC
<u>P. evides</u>	23	R		WRGKC
<u>P. maculata</u>	3			WRGC

Locality: 1=Upper river, 2=Middle river, 3=Lower river,
trib=tributary

Habitat: R = Riffle, P = Pool

Season: 1 = Spring, 2 = Summer, 3 = Fall, 4 = Winter

Researcher: R = Robinson/Buchanan, K = Kilambi/Becker
C = Cashner/Brown, G = Guidroz, A = Arkansas G&FC
W = Walters

(1) Initial outline provided by Dr. Cynthia Annett for Buffalo River ichthyofauna and updated to include 1992 collection data from the Arkansas Game and Fish Commission and Jody Walters, Arkansas Cooperative Fish and Wildlife Research Unit, 1993:

V. FISHERIES MANAGEMENT GOALS AND OBJECTIVES

SUMMARY - Three goals have been identified as critical to a successful fisheries management program. (1) Seek to preserve and restore natural ecosystem functions. (2) Provide those angling experiences for native species. (3) Stress coordination and communication with State, Federal, private sector.

Specific objectives and tasks are identified which are designed to meet these goals.

Goal I - fisheries management will seek to preserve and restore natural ecosystem functions and components such as aquatic habitats and the conserve natural abundance and distribution of native aquatic species, including fish, together with the associated terrestrial habitats and species.

Objective 1 - Hire a permanent full-time Fisheries Biologist to implement a Fishery Management Plan, conduct studies, communicate with other agencies, identify research needs, and establish credibility for the program.

Objective 2 - Obtain baseline data on selected aquatic, physical, chemical, and biological parameters.

Tasks

Water quality: Through existing monitoring program monitor DO, pH, NOx, TSS, coliform.

Collect summer samples of chlorophyll a. Use artificial substrates for filamentous algae collection.

Historic data: Collect Global Climate Change flow gauge data, analyze historic aerial photos, collect White River pre/post dam data on fisheries.

Benthic macroinvertebrates: collect resource baseline data using artificial substrate, Surber, vacuum methods.

Fish communities: Collect data on five year cycles on fish species relative abundance, composition, and diversity, guilds, age/growth, condition, biomass.

Fish species: Track those species introduced into the drainage but outside Buffalo N.R.

Physical structure/hydrology: utilize Global Climate Change research project data at three sites within the river.

Contaminants: Conduct pesticide scan for 137 compounds and heavy metal scan fish tissue using 3-4 year old suckers.

Indicator species: Target indicator species for annual monitoring using species identified by fisheries biologists such as mussels, mayflies, 3-4 fish species, turtles, amphibians (cricket frogs), and salamanders.

Monitor land use changes within watershed tributaries and its potential impacts on fisheries through the ad hoc advisory committee of private citizens and their annual report.

Objective 3 - Design and implement monitoring strategy to detect and identify long-term trends and changes.

Tasks

Standardize sampling procedures using carefully selected specific indicators.

Design step-up plan for triggering increased sampling intensity and problem analysis.

Design and implement an action response to address concerns and effects of identified trends and changes.

Objective 4 - Evaluate the potential for restoration of a self-reproducing channel catfish population within the Buffalo River.

Tasks

Develop a Restoration Plan for channel catfish.

Objective 5 - Develop a plan to assess the potential effects caused by cold water releases from the Bull Shoals Dam on fish species of the Buffalo River.

Goal II - *Provide diverse and quality recreational angling opportunities for native species.*

Objective 1 - Assess recreational angling baseline opportunities.

Tasks

Initiate a Creel survey on a ten year cycle stressing Catch per Unit Effort and the biological characteristics of the catch and creel, major game species, and angler satisfaction, needs, and demographics.

Objective 2 - Correlate recreational data with long term biological monitoring to recognize potential impacts to the fisheries program.

Objective 3 - Maintain adequate fishing access within the confines of NPS Policy, regulations, and Park management goals.

Tasks

Identify the number and condition of existing boat ramps, sanitary facilities, roads/trails and other facilities that provide access for recreational fishing. Prepare necessary documentation for repair of existing structures and new construction.

Develop and implement recreational fisheries programs for special populations of anglers.

Include in planning documents and management activities, where appropriate, provisions for accessibility by special populations to recreational fisheries facilities and activities.

Determine that planned access facilities will not increase usage beyond the resources ability to recover.

Increase support and involvement in programs such as Fishing Has No Boundaries, a multi-agency program to improve fishery-oriented activities for disabled persons, and national Fishing Week, a multi-agency program that encourages children and families to fish.

Objective 4 - Design/coordinate/implement action response to fisheries compliance issues.

Tasks

Design a law enforcement response for non-compliance fisheries issues.

Goal III - Coordinate management of resources with State, Federal and private sector.

Objective 1 - Develop formal agreements with cooperators to promote better communication, define common needs, provide mechanism to mitigate joint issues.

Tasks

Modify the existing Memorandum of Understanding with the Arkansas Game and Fish Commission to include Fishery Management Plan.

Develop Memorandum of Understanding with the Buffalo Ranger District, Ozark National Forest, to address common elements in the Fishery Management Plan.

Objective 2 - Develop forum for information exchange.

Tasks

Develop ad hoc technical group of fisheries biologists to advise management on decisions regarding NPS fisheries management

Develop ad hoc citizen group including fisheries special interest groups such as The Smallmouth Bass Club, etc. to promote a watershed based fisheries management effort and provide input to management.

Conduct symposium on Buffalo National River fisheries management and fishing.

Objective 3 - Develop Information/exchange outreach

Tasks

Participate in National Fishing Week activities which stress angler ethics and conservation stewardship.

Involve concessions and tour groups in interpretive fisheries management messages.

VI TASK ITEM AGENDA

SUMMARY - Each agency and public group has been tasked with specific projects identified under Section V. These are listed below.

A. Arkansas Game and Fish Commission assisted by NPS staff

- Make fisheries management recommendations based on biological and angler use/harvest data collected
- Collect data on fish populations on five-year cycles
- Develop joint Channel Catfish Restoration Plan
- Monitor those fish species introduced into the Buffalo drainage

Law Enforcement

- Identify enforcement problems and develop a step-up plan for non-compliance issues
- Develop and implement coordinated enforcement plan with AGFC

B. National Park Service

Resources Management

- Collect routine water quality data
- Develop Memorandum with Ozark NF
- Develop ad hoc technical committee
- Develop ad hoc citizens advisory committee
- Host symposium on fishes and fishing in the Buffalo River
- Develop joint Channel Catfish Restoration Plan

Interpretation

- Develop and participate in existing programs for special populations
- Participate in National Fishing Week
- Prepare programs for concessions and tour groups stressing angler ethics, conservation, and fisheries issues.

Law Enforcement

- Identify enforcement problems and develop a step-up plan for non-compliance issues
- Develop and implement coordinated enforcement plan with AGFC

Maintenance

- Conduct analysis of existing fisheries access
- Design future facilities with consideration for cumulative resource impacts to fisheries
- Provide for special populations fishing access

C. National Biological Service

Global Climate Change Research

- Collect historic stream gauge data
- Analyze historic photographs

- Complete RBA for benthic macroinvertebrates
- Examine physical structure and hydrology

Arkansas Cooperative Fish and Wildlife Research Unit

- Research pre-dam fisheries data on White River/Buffalo River
- Conduct analysis of sucker (sp) for pesticides and heavy metals
- Survey indicator species for initial baseline data (invertbrates, mussel, mayfly, amphibian, salamander)
- Conduct creel survey and socio-economic analysis on a five year cycle
- Conduct stocking oriented channel catfish research

D. Ad hoc technical committee

- Recommend standard sampling procedures
- Design step-up sampling plan for problem analysis

E. Ad hoc citizen committee

- Document the status of development in watershed tributaries
- Issue an annual report to the agencies on the state-of-the-watershed
- Present public concerns regarding fisheries management issues

VII. PUBLIC INVOLVEMENT

Public involvement in the plan development was through a series of open house events in Harrison, Mountain Home, and AGFC Headquarters in Little Rock. These events were jointly coordinated between the three agencies to acquire public input into additional goals and objectives for the plan.

The time table for completion of the Plan was following:

July 1, 1993 - Goals and objectives to AG&FC and USFS for review/comment

NPS portion of draft Plan to cadre members for review and comment

August 25, 1994 - Joint meeting with agency cooperators to incorporate comments in tentative Plan

March 1, 1995 - Initiate open house meetings for public comment on existing goals/objectives and addition goals

June 1, 1995 - Final agency review

August 13, 1995 - Final document sent for agency signature

VIII. LITERATURE AND REPORTS CITED

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APPENDICES

Appendix I. Memorandum of Understanding between Buffalo National River and the Arkansas Game and Fish Commission.

Appendix II. Memorandum of Understanding between the Buffalo Ranger District, Ozark National Forest and Buffalo National River.

Appendix III. Amendment 35

Appendix IV. Relevant sections of Park Legislation, The Master Plan for Buffalo National River, National Park Service Management Policies.

Appendix I.

REAFFIRMATION MEMORANDUM

AGREEMENT NUMBER MU 7150-7-8002

AGREEMENT TITLE Memorandum of Understanding
between National Park Service
and Arkansas Game and Fish
Commission

We, the undersigned, have the authority and do hereby reaffirm this agreement between the National Park Service and Arkansas Game and Fish Commission.

The original agreement was signed by Alec Gould, Superintendent of Buffalo National River and Steve Wilson, Director of Arkansas Game and Fish Commission and dated 1/05/87.

This agreement and all its terms and conditions is to continue in effect for an additional * Five years from 1/06/92 until 1/06/97.

John D. Lusk
Name and Title
National Park Service

1/16/92
Date

Steve Wilson
Name and Title
Director, AGFC

Jan 21 1992
Date

* Not to exceed five years

MEMORANDUM OF UNDERSTANDING
BETWEEN
NATIONAL PARK SERVICE
AND
ARKANSAS GAME AND FISH COMMISSION

ARTICLE I. Background and Objectives

This MEMORANDUM OF UNDERSTANDING between the National Park Service, Buffalo National River, hereinafter referred to as the "Service," and the State of Arkansas Game and Fish Commission, hereinafter referred to as the "Commission," is as follows:

WHEREAS, the Commission has been created under the laws of the State of Arkansas to provide an adequate and flexible system of control, propagation, protection, and regulation of all fish and wildlife in Arkansas, and is responsible for regulating the public use of these resources for the benefit of the people of the State of Arkansas; and

WHEREAS, the Service is responsible under Public Law 92-237 and 16 USC to administer and manage the lands, waters, natural and historic resources contained within the boundaries of Buffalo National River for the benefit and enjoyment of the people of the United States; and

WHEREAS, the Commission and the Service recognize the necessity for ecologically sound regional planning to perpetuate and to restore, where opportunity presents, the diversity and abundance of fish and wildlife resources within the State of Arkansas; and

WHEREAS, the Commission and the Service desire to conduct joint and cooperative endeavors which will focus the skills and abilities of the Commission and the Service on resolving their mutual fish and wildlife problems, achieving maximum public benefits from fish and wildlife resources, and ensuring that the respective objectives and responsibilities of the Commission and the Service are fulfilled.

ARTICLE II. Statement of Work

A. The Service agrees that:

1. Consistent with the official Service policies and objectives, the Service will practice those forms of management which recognize and benefit fish and wildlife resources.

2. As provided by Congress in Section 3 of the Act establishing the Buffalo National River, the Service shall permit hunting and fishing on lands and waters under its jurisdiction within the boundaries of the Buffalo National River in accordance with applicable Federal and State laws, except there may be established designated zones where and when no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment. Except in emergencies, any rules or regulations of this nature shall be put into effect after consultation with the Arkansas Game and Fish Commission.
3. It will cooperate with the Commission in the joint enforcement of applicable game and fish laws on lands and waters administered by the Service to the fullest extent permitted by law.
4. Will authorize the use by Commission personnel of the Service's radio frequency in up to 7 Commission radio units in order to enhance official communication capabilities necessary for joint law enforcement and management operations.
5. It will develop fishery and wildlife management plans to guide the management of these two park resources.
6. It will cooperate with the Commission in monitoring fish and wildlife populations on lands and waters administered by the Service.

B. The Commission agrees that:

1. It will consult with the Service before establishing any special hunting or fishing seasons and regulations, or implementing any management programs that might affect the fish or wildlife resources within the Buffalo National River area. Except in emergencies, any rules or regulations of this nature shall be put into effect only after consultation with the Service.
2. It will only release, trap or stock wildlife and/or fish species or introduce any plant species within the park with the approval of the National Park Service in accordance with approved management plans.
3. It will assist the Service in the maintenance or restoration of the natural or historical distribution and abundance of fish and wildlife populations in the Buffalo National River by means concurred with or approved by the National Park Service.

C. The Commission and the Service mutually agree that:

1. They will meet at least once annually before April 30, and to provide for other meetings as deemed necessary, for discussion of matters relating to the management of the fish and wildlife on the lands and waters within the boundaries of Buffalo National River.
2. They will encourage the joint publication of press releases and the interchange between parties of all pertinent agency policies and objectives, statutes, rules and regulations, and other information required for the wise use and perpetuation of the fish and wildlife resources of Buffalo National River.
3. They will enter into working arrangement for special projects, as occasion demands, for the use of lands, buildings, and other facilities owned and operated by either party hereto.
4. They will enter into such supplemental agreements to this Memorandum of Understanding as may be necessary to carry out joint evaluations of fish and wildlife resources and to carry out joint approved management programs.
5. They will obtain the other agency's collection permits and abide by any special regulations concerning collecting and/or research prior to conducting any research or monitoring of game and fish populations within the boundaries of Buffalo National River and will ensure that any research they contract is conducted under similar permits.

ARTICLE III. Term of Agreement

This Memorandum of Understanding shall become effective when signed by the parties hereto and shall continue in force for a period of five years. Parties to this agreement will reassess the benefits that have accrued and determine if they should reaffirm this agreement prior to the expiration date.

Amendments to this Memorandum of Understanding may be proposed by either party and shall become effective upon approval by both parties.

Each and every provision of this Memorandum of Understanding is subject to the laws of the United States, the laws of the State of Arkansas, and all lawful rules and regulations promulgated thereunder, and shall be interpreted accordingly.

Nothing in this Memorandum of Understanding shall be construed as obligating either party hereto to the expenditure of funds or the future payment of money in excess of appropriations authorized by law.

Nothing contained herein shall be construed as limiting in any way the responsibility and authority, as defined by law, of the Director, National Park Service, and the Director, Arkansas Game and Fish Commission, in connection with the administration and protection of lands and resources under their respective administrations.

ARTICLE IV. Key Officials

The key officials in executing this Memorandum and any amendments, reaffirmations or supplemental agreements which may be necessary to carry out this Memorandum will be the Superintendent, Buffalo National River, and the Director, Arkansas Game and Fish Commission.

ARTICLE V. Termination

This Memorandum of Understanding may be terminated by mutual agreement or by either party upon sixty (60) days' notice in writing to the other of their intention to do so.

ARTICLE VI. Required Clauses

During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding as of the date last signed below:

National Park Service

Dated: 1/5/87

By: [Signature]

Superintendent, Buffalo National River

State of Arkansas - Game and Fish Commission

Dated: 12-8-86

By: [Signature]

Director

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
BUFFALO RANGER DISTRICT/OZARK NATIONAL FOREST
AND
BUFFALO NATIONAL RIVER

ARTICLE I. Background and objectives

This MEMORANDUM OF UNDERSTANDING is entered into by and between the Buffalo Ranger District of the Ozark National Forest, United States Forest Service, under the provisions of the National Forest Management Act (NFMA), hereinafter called the "Forest Service" and Buffalo National River, for and in behalf of the United States Department of the Interior, National Park Service, hereinafter called the "Park Service", under the authority granted in 16 USC, sec. 460m-8, et seq, WITNESSETH.

WHEREAS, the Forest Service manages the first fifteen miles of the Buffalo River including the headwaters, and

WHEREAS, the Forest Service has the intent of managing the headwaters as a naturally functioning ecosystem and is charged with managing the fisheries resources associated with those waters, and

WHEREAS, the Forest Service fisheries biologist may assist the National Park Service with cooperative research, monitoring, and management efforts to protect and preserve fisheries, and

WHEREAS, the Park Service is responsible for management of Buffalo National River by such means and measures as conform to the fundamental purpose of such areas, to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations, and

WHEREAS, the Park Service relies on the Forest Service to provide protection for the water quality, fisheries, and other components of the ecosystem within the headwaters of the Buffalo River under its' jurisdiction, and

WHEREAS, opportunities currently exist and additional opportunities may be developed for the Forest Service and the Park Service to achieve their management goals more effectively and efficiently by participating in cooperating activities, now therefore,

It is agreed that the Forest Service and the Park Service will cooperate in every practical and proper manner consistent with each agencies' respective mission and mandate to protect the Buffalo River and its environs. Such cooperation will extend to partnerships in the areas of management planning, training, research, and monitoring.

ARTICLE II. Statement of Work

A. The Forest Service will:

- 1) Manage the Buffalo River and its' tributaries on Forest Service lands in a manner to promote and ensure that they remain as naturally functioning ecosystems.
- 2) Continue to utilize best management practices in all forest activities to prevent degradation of water quality and fisheries habitat.
- 3) Work with and assist Buffalo National River personnel in the management of the fisheries resource in Buffalo River.

B. The Park Service will:

- 1) Manage the Buffalo National River in a manner consistent with a natural functioning ecosystem, as outlined in the joint Fishery Management Plan for the Buffalo River.
- 2) Work with and assist Ozark National Forest personnel in the management of the fisheries resource in the Buffalo River.

C. The Forest Service and the Park Service jointly will:

- 1) Work cooperatively with the Arkansas Game and Fish Commission to implement a management plan for Buffalo River fishery.
- 2) Meet annually for discussion of matters relating to the management of the fisheries in the Buffalo River.
- 3) Conduct joint training and make training opportunities available to agency personnel when possible.
- 4) Provide assistance to the each other in the planning and execution of species/habitat management activities.
- 5) Attempt to develop compatible computer fisheries databases.

ARTICLE III. Terms of Agreement

This agreement is effective for a period of five years upon the last date of signature of the Superintendent, Buffalo National River and the District Ranger, Buffalo District, Ozark National

Forest. Its' terms may be renegotiated at any time at the initiative of either signatory.

This agreement shall be reviewed by both signatories on a five year basis in order to assess its effectiveness and make necessary revisions.

Each and every provision of this Memorandum of Understanding is subject to the laws of the United States, the laws of the State of Arkansas, and all lawful rules and regulations promulgated thereunder, and shall be interpreted accordingly.

Nothing in this Memorandum of Understanding shall be construed as obligating the Forest Service, the Park Service, or the United States Government in the expenditure of funds or for future payment of money in excess of appropriation authorized by law.

Nothing in this Memorandum shall be construed as limiting or effecting in any way the authority of the Park Service or the Forest Service to properly administer and protect Buffalo River in accordance with approved plans or the purpose for which the lands contained therein were acquired and reserved.

ARTICLE IV. Key Officials

The key officials in executing this Memorandum and any amendments, reaffirmations or supplemental agreements which may be necessary to carry out the Memorandum will be the Superintendent, Buffalo National River, and the District Ranger, Buffalo District, Ozark National Forest.

ARTICLE V. Termination

This Memorandum of Understanding may be terminated by mutual agreement or by either party upon sixty (60) days notice in writing to the other of their intention to do so.

ARTICLE VI. Required Clauses

During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

IN WITNESS WHEREOF, the parties hereto have executed the Memorandum of Understanding as of the date last signed below:

National Park Service

Dated: 1/26/94

By: *John D. Linsley*
Superintendent, Buffalo National River

District Ranger, Buffalo Ranger
District, Ozark National Forest

Dated: January 19, 1994

By: *Laura Rogers*
District Ranger

Appendix III.

AMENDMENT NO. 35

Be it Enacted by the People of the State of Arkansas.

That the following shall be an amendment to the Constitution:

Section 1. The control, management, restoration, conservation and regulation of birds, fish, game and wildlife resources of the State, including hatcheries, sanctuaries, refuges, reservations, and all property now owned, or used for said purposes and the acquisition and establishment of same, the administration of the laws now and/or hereafter pertaining thereto, shall be vested in a Commission to be known as the Arkansas State Game and Fish Commission, to consist of eight members. Seven of whom shall be active and one an associate member who shall be the Head of the Department of Zoology at the University of Arkansas, without voting power.

Section 2. Commissioners shall have knowledge of and interest in wildlife conservation. All shall be appointed by the Governor. The first members of the Commission shall be appointed by the Governor as follows: One for one year, one for two years, one for three years, one for four years, one for five years, one for six years, and one for seven years. Each Congressional District must be represented on the Commission.

Section 3. Upon the expiration of the foregoing terms of the said Commission, a successor shall be appointed by the Governor for the term of seven years, which term of seven years shall thereafter be for each member of the Commission. No Commissioner can serve more than one term and none can succeed himself.

Section 4. Each Commissioner shall take the regular oath of office provided in the Constitution and serve without compensation other than actual expenses while away from home engaged entirely on the work of the Commission.

Section 5. A Commissioner may be removed by the Governor only for the same causes as apply to other Constitutional Officers, after a hearing which may be reviewed by the Chancery Court for the First District with right of appeal therefrom to the Supreme Court, such review and appeal to be without presumption in favor of any finding by the Governor or the trial court.

Section 6. Vacancies on the Commission due to resignation or death shall be filled by appointment of the Governor for the unexpired term within thirty days from date of such vacancy; upon failure of the Governor to fill the vacancy within thirty days, the remaining Commissioners shall make the appointment for the unexpired term. A Chairman shall be elected annually from the seven members of the Commission to serve one year.

Section 7. The Commission shall elect an Executive Secretary whose salary shall not exceed that of limitations placed on other constitutional departments; and other executive officers, supervisor, personnel, office assistants, wardens, game refuge keepers, and hatchery employees, whose salaries and expenditures must be submitted to the Legislature and approved by an Act covering specific items in the biennial appropriation as covered by Article XVI, Section 4 of the Constitution.

Section 8. No person shall be employed by the Commission who shall be related to any of the Commissioners or any other State Officers within the third degree of relationship by blood or marriage. All employed personnel may make arrest for violation of the game and fish laws.

The fees, monies, or funds arising from all sources of operation and transaction of the said Commission and from the application and administration of the laws and regulations pertaining to birds, game, fish and wildlife resources of the State and the sale of property used for said purposes shall be expended by the Commission for the control, management, restoration, conservation and regulation of the birds, fish and wildlife resources of the State, including the purchases of other acquisitions of property for said purposes and for the administration of the laws pertaining thereto and for no other purposes. All monies shall be deposited in the Game Protection Fund with the State Treasurer and such monies as are necessary including an emergency fund shall be appropriated by the Legislature at each legislative session for the use of the Game and Fish Commission as hereto set forth. No monies other than those credited to the Game Protection Fund can be appropriated.

All money to the credit of or that should be credited to the present Game Protection Fund shall be credited to the new Game Protection Fund and any appropriation made by the Legislature out of the Game Protection Fund shall be construed to be for use of the new Commission and out of the new Game Protection Fund.

The books, accounts and financial affairs of the Commission shall be audited by the State Comptroller as that department deems necessary, but at least once a year.

Resident hunting and fishing licenses, each, shall be One and 50/100 Dollars annually, and shall not exceed this amount unless a higher license fee is authorized by an Act of the Legislature.

The Commission shall have the exclusive power and authority to issue licenses and permits, to regulate bag limits and the manner of taking game and fish and fur-bearing animals, and shall have the authority to divide the State into zones, and regulate seasons and manner of taking game, and fish and fur-bearing animals therein, and fix penalties for violations. No rules or regulations shall apply to less than a complete zone, except temporarily in case of extreme emergency.

Said Commission shall have the power to acquire by purchase, gifts, eminent domain, or otherwise, all property necessary, useful or convenient for the use of the Commission in the exercise of any of its duties, and in the event the right of eminent domain is exercised, it shall be exercised in the same manner as now or hereafter provided for the exercise of eminent domain by the State Highway Commission. All laws now in effect shall continue in force until changed by the Commission. All contracts and agreements now in force shall remain in force until the date of their expiration.

This amendment shall not repeal, alter or modify the provisions of any existing special laws under the terms of which a County Game Commission has been created.

The Commission shall be empowered to spend such monies as are necessary to match Federal grants under the Pittman-Robertson or similar acts for the propagation, conservation and restoration of game and fish.

The amendment shall become effective July 1, 1945.

(Proposed by Initiated Petition. Voted upon at General Election November 7, 1944. For 115,214; Against 72,797)

Appendix IV.

Public Law 92-237 Establishing Buffalo National River

Sec. 3. "The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the boundaries of the Buffalo National River in accordance with applicable Federal and State laws, except that he may designate zones where and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use or enjoyment. Except in emergencies, any rules and regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Arkansas Fish and Game Commission."

The Final Master Plan for Buffalo National River

Page 17 The Buffalo is nationally outstanding for the many species of fishes. It is a "classic" stream for smallmouth bass, whose original habitat within the Mississippi basin has been largely altered or destroyed. Largemouth bass, rock bass, spotted bass, bluegill sunfish, green sunfish, redhorse, gar, and catfish are also present. Among the unusual species are darters, northern studfish, and chestnut lamprey. It is interesting to note that the Buffalo is an isolated ecological unit protected from invasion of warm-water rough fish by the chilled water of the White River below Bull Shoals Dam. The Buffalo's waters are too warm for trout.

Page 21 The Bureau of Sport Fisheries and Wildlife felt, in 1964, that the river was then providing over 27,000 man-days of fishing to residents of 22 States, and 7,400 man-days of hunting.

Before the establishment of the national river, visitors were using the area much as they will in the future, although to a lesser degree because of present limited access and private land restrictions. They explore backcountry roads, marvel over cabins, hike through fields, forests, and canyons, investigate caves, float and fish the river, and hunt the animals. None of these uses poses particular problems at present levels; however, conflicts can be expected as volume of use grow, for floaters, swimmers, and fishermen have different interests.

Page 22 Difficult to grasp, but important, it is a symbol to the nation - a free river preserved to flow through open space for all time as a remnant of our original homeland. Add to this the opportunity to float, fish, swim, and explore in an attractive near-wild setting and the river valley can be seen yielding experiences of a kind and quality that are becoming rare in urbanized America.

Page 27 Buffalo National River is a three-way park to users: it is an on-the-way point of interest for the tourist; the "ol' swimmin' and fishin' hole" for local users; and a destination area for the avid canoeist.

The spontaneous and individual types of experience will be preserved - such as unguided cave exploration, private canoes trips, and "wild" fishing and hunting.

Devices to promote use will include bicycle trails, motor nature routes, primitive riverside camps, floatboat rentals, interpretive cave tours, wildflower walks, swimming beaches, stabilized historic cabins, photography, fishing, and hunting activities.

Page 31 The area is set aside for special activities: fishing, hunting, canoeing, caving, and exploring are all proper concerns, as are nature study and pioneer-cabin and ghost-town visits.

Page 32 Floating and river camping - Since the main focus is on the river, all visitors who spend some time in the area will be encouraged to experience the river in close contact - canoeing, johnboat fishing, swimming, wading, studying aquatic nature, or just sitting and watching.

Page 36 Major sites will be located at Pruitt, Tyler Bend, and Buffalo Point. Information and orientation services will also be provided here. Each will provide primitive camping, picnicking, swimming, sanitary facilities, and interpretive opportunities, as well as access for floaters and fishermen.

Page 42 The National Park Service will cooperate with the Arkansas Game and Fish Commission in managing the wildlife. In this regard, the wildlife observation and hunting opportunities provided will be comparable with other uses in the national river; the U.S. Bureau of Sports fisheries and Wildlife has observed that the wildlife habitat in the basin is of moderate value and therefore it is proper that the National Park Service not overemphasize this use when other resources, including that of float fishing, are of national significance.

Fishery management presents something of a paradox. A plan was once presented to increase the low-flow state of the main river through a series of small upstream reservoirs. With it, it was calculated that stream fishing would increase by 26 percent, to 34,500 man-days. But what would such a program do to the concept of the Buffalo River as one of America's last samples of an untamed free-flowing stream? "If quality is the guidepost to the special recreation experience to be provided here, should not even the catch-oriented fisherman take the river on its own terms rather than 'fixing it' to suit his pleasure? Occasional disappointments may result without an intensive fish-management program, but certainly the sense of adventure and self-sufficiency will not suffer."

Page 50 The focal attraction of visitor use will be water-oriented recreation. A broad spectrum of activities, including canoeing, boating, hiking, swimming, picnicking, camping, fishing, hunting, sightseeing, and horseback riding, will be in keeping with area purposes.

Management Policies, U.S. Department of the Interior, National Park Service

Chapter 4.6 Native animal populations will be protected against harvest, removal, destruction, harassment, or harm through human action. Individual animals within a population may be removed only when fishing is not specifically prohibited;

Chapter 4:7/8 Fishing may be restricted in certain waters and at certain times if it is determined such actions are needed;

to protect rare, threatened, or endangered plant or animal species in the waters or in adjacent habitat;

to meet park objectives for scientific study, interpretation, environmental education, appreciation of fish and other aquatic life, or other public benefits;

to provide for depressed fisheries to recover;

to protect spawning grounds of endemic fish species;

to maintain natural distribution, densities, age-classes, and behavior of fish or of native wildlife species that use fish for food;

to protect the natural integrity of aquatic areas within natural zones.

In natural, cultural, and park development zones, fisheries management will seek to preserve or restore natural aquatic habitats and the natural abundance and distribution of native aquatic species, including fish, together with the associated terrestrial habitats and species. In these zones, waters that are naturally barren of fish will not be stocked with any species. Artificial stocking of native fish will be employed in natural zones only to reestablish native species in their historic ranges; stocking of exotic fish species will not be permitted in natural zones. Stocking of native or exotic species will be permitted in cultural zones only where a special need associated with the historic events or individual commemorated and where there an exotic species, if used, could not spread to natural waters or waters outside the park. Stocking with native species, but not with exotic species, will be permitted in park development zones. Stocking programs for other purposes in these zones will be discontinued or phased out except where there is congressional intent expressed in law or a House or Senate report accompanying legislation. Rivers and streams in special use zones may be stocked with exotic species of fish only when it has been determined that exotics already are present and established and where scientific data indicate that introducing additional exotics would not diminish native plant and animal populations and that the exotics could not spread to natural zones or to waters outside the park.

Chapter 8:4 Recreational fishing will be allowed in parks where it is authorized by federal law or where it is not specifically prohibited and does not interfere with the functions of natural aquatic ecosystems or riparian zones. Where fishing is allowed, it will be conducted in accordance with applicable federal laws and treaty rights and state laws and regulations. However, the National Park Service may restrict fishing activities whenever necessary to achieve management objectives outlined in a park's resource management plan.

Commercial fishing will be allowed only where specifically authorized by federal law or treaty right.

Chapter 9:14 Facilities for Water Recreation Boating facilities (such as courtesy docks, boat ramps, floating sewage pump-out stations, and marinas), breakwaters, and fish cleaners will be provided as appropriate for safe visitor enjoyment of water recreational resources and to protect natural resources.